SOUTH COUNTY JOINT PLANNING PROGRAM

City of Morgan Hill City of Gilroy County of Santa Clara

SEWERS AND SANITATION IN SOUTH COUNTY

BACKGROUND REPORT

FOR THE

SOUTH COUNTY JOINT PLANNING PROGRAM

PREPARED BY: MAUREEN OWENS

COUNTY OF SANTA CLARA

DEPARTMENT OF LAND USE AND DEVELOPMENT

OFFICE OF PLANNING

Adopted: August 8, 1985

4. SEWERS/SANITATION

Urban Wastewater Treatment in South County

4.1. The amount and rate of growth of the two cities is dependent on the management of the wastewater treatment facility and the capacity and timing of its expansion or replacement.

4.2. The existing Gilroy/Morgan Hill wastewater treatment facility was built with a design capacity of 6.1 mgd. The system effluent is disposed of by percolation ponds in which percolation capacity is limited by high ground water levels. The system also has had odor problems.

4.3. In 1984 the Regional Water Quality Control Board rated the systems capacity at 5.15 mgd, resulting in a moratorium on further hookups, and directed the Cities to develop interim and long term solutions.

4.4. A separate, adjacent facility treats wastewater generated by food processing plants, bypassing the municipal plant and discharging its effluent into another system of percolation ponds. Following citation of the food processors system by the Bay Area Air Quality Management District for odor problems, the two systems have traded land and reconfigured the percolation ponds to increase winter percolation capacity and reduce odor problems.

4.5. In 1985, in response to actions by the Cities, the Regional Water Quality Control Board re-rated the system capacity to 6.1 mgd.

4.6. The 6.1 mgd. capacity of the existing facility will probably be fully used by 1989 based on current commitments and expected growth rates. Further development can proceed as planned only by expansion of the current facility or construction of a new one.

4.7. The cities are planning a new wastewater treatment facility for construction by 1988-1990. Six system alternatives, including "no project" are being evaluated, and financing methods are being explored.

4.8. All of the long-term plan alternatives are designed for an effluent capacity of 18 mgd. average annual flow, which will handle any combination of land uses, such as residential, commercial and industrial, with a discharge equal to a population of 143,500 or, assuming 3.54 persons per dwelling unit, 40,537 dwelling units.

4.9. The design planning period for the project is 1988 to 2008, based on a reasonable lifetime of 20 years for wastewater facilities and an assumed implementation schedule of 1988 for construction/operation.

4.10. The projected population of 143,500 for the sewer system service area is based on previously prepared population projections, historical trends and on the planning policies of the communities. These include Morgan Hill's Measure E, which limits its population to 30,000 in the year 2000, when it expires.

4.11. The project alternatives differ primarily in the methods of disposing of the effluent, e.g., land disposal by means of percolation ponds, below surface infusion into the Pajaro River water system, or transport by pipe to Monterey Bay.

4.12. Disposal of the effluent is the primary limitation on system capacity. Land disposal requires large tracts of land. A pipe to the ocean could be pressurized to increase its capacity.

4.13. Difference in both capital and operating cost is related primarily to the method of effluent disposal. Disposal into the Pajaro River would probably require expensive, tertiary treatment; land disposal would require purchase of large land areas. The financing of the facility might affect potential funding for other community facilitaties or services.

4.14. The local land use impacts of the system would be greatest for the land disposal alternatives. Percolation ponds will require 1,300 acre of land, converting it to permanent and unpopular open space and impacting surrounding land, particularly residential uses. Expansion to accommodate growth after the year 2008 may be more difficult for land disposal than for ocean/river disposal.

Septic Systems

4.15. Septic systems are the basic means of approved sewage disposal in the unincorporated, rural area of South County.

4.16. Approximately 18,000 people residing in unincorporated areas of the South County use septic systems.

4.17. Septic systems are generally suited only to residential-scale land uses and waste composition since their effectiveness is limited as to size of systems and volume and composition of discharge.

4.18. County policies discourage the use of septic systems for commercial and industrial uses, except where such uses will not generate large volumes or unsuitable wastes.

4.19. Several factors affect the ability of soils to accommodate septic tank effluent: soil type, very rapid or slow percolation rate, high groundwater level, distance to adjacent surface waters, slope, and shallow bedrock or impermeable layer.

4.20. The presence of septic systems contributes to degradation of drinking water supplies by salts, particularly nitrates, and, sometimes, by bacteria and viruses.

4.21. There are areas where cumulative effects from the total number of septic systems contribute to groundwater quality problems or where the intensity of existing or proposed uses may be greater than can be accommodated satisfactorily by septic systems.

4.22. The Santa Clara County Health Department, Environmental Health Services, issues permits for septic tank systems in areas where municipal sanitary sewer services are not available and where there are appropriate soil conditions which permit the safe use of septic systems. The County Health Department is responsible for monitoring septic tanks and investigating complaints regarding suspected failing septic systems.

4.23. Of the County facilities located in South County, the South County Office Building is connected to the Morgan Hill-Gilroy sewer line through agreement with the cities. The others, including the Airport, Transit Agency Service Facility and the Boy's Ranch, have septic systems.

San Martin

4.24. All of the San Martin area residences, farms and other establishments are served by septic systems or other individual systems such as sumps or cesspools. Access to the Gilroy/Morgan Hill sewer systems is not available without approval by the Cities of Morgan Hill and Gilroy.

4.25. Outside the service area of the two small water companies, contamination of domestic water supply can only be prevented by limiting the total amount of discharge and by keeping the lots large enough that the effluent from the septic system does not reach the underground water in wells from which domestic water is drawn.

4.26. In various parts of the San Martin area, including those along Llagas Creek, there are soils with high permeability which allow septic effluent to travel through the soil faster and further, thus jeopardizing the quality of groundwater. Also some areas have a high water table, where effluents can reach the groundwater. In such areas, further restrictions on land use and/or discharge are the accepted mitigations.

4.27. The San Martin area, along with other South County areas, has wells producing water with levels of nitrates unhealthy to babies, expectant mothers and others with certain health problems. For such people it is necessary to use bottled water or to denitrify the well water.

4.28. The San Martin Water Quality Study concluded in 1981 that high nitrates were primarily the result of historic buildup from years of agricultural use with the more recent contribution being the increase of septic systems. It was recommended that land use/density be restricted to limit the future discharge of nitrates, with the most vigorous restrictions to be directed to areas of high-soil permeability and high groundwater, where contamination can be most direct.

4.29. The County General Plan states that if land use in the San Martin area is to be significantly intensified, a waste water management system, along with other improvements, will be required. It further states that the County should determine the best method to finance these improvements and services and determine what government entity should administer and operate them.

4.30. The existing sewer pipeline from Morgan Hill to Gilroy was designed with capacity to serve only Morgan Hill, and it enlarges south of Day Road on the north side of Gilroy to handle the flow contributed by Gilroy. There is no excess capacity for San Martin. The pipeline right of way is established and San Martin capacity could be included when (and if) a parallel pipeline is added.

4.31. For purposes of planning for the new Gilroy/Morgan Hill wastewater treatment facility, capacity would be included for 6,700 people in San Martin. This capacity for San Martin, however, is for planning purposes only and would not allow San Martin to connect to the same system unless specific financing and management agreements are met.

4.32. To sewer the San Martin area would be a major public works project, partly because of the low density, and would be expensive for many existing residents.

4.33. In addition to annexation to Morgan Hill or Gilroy, creation of a special district or incorporation as a separate city are the most likely methods for organizing the project, with the issuance of bonds to allow the cost to be extended over a period of years. If bonds are issued, the total cost would be increased by interest charges.

4.34. Extensive land use changes would be promoted by a sewer system.

5. INFRASTRUCTURE

Infrastructure needs should be identified and their development coordinated to minimize costs and to support achievement of community goals.

5.1. Cities should provide an urban level of services and facilities to urban areas. Strategies that help achieve this objective and are already partially or fully in use include:

a. requiring that the timing and location of future urban development be based upon the availability of public services and facilities,

b. requiring new development to pay all of the incremental public service costs which it generates, and

c. requiring developers to dedicate land and/or pay to offset the costs relating to the provision and expansion of public services and facilities.

6. INFRASTRUCTURE: SEWERS/SANITATION

Expansion of the joint Gilroy/Morgan Hill sewage treatment plant should proceed, since additional sewer capacity is a prerequisite for further urban development and urban development is most appropriately served by sanitary sewer systems. Septic systems should be used only for low-intensity uses where they will have minimum impact on the environment.

6.1. The total capacity for the Gilroy/Morgan Hill Wastewater Treatment Facility, its timing for completion, and configuration should be consistent with agreed upon policies for the overall growth of the South County.

a. The Cities of Gilroy and Morgan Hill should determine the best method to increase and fund their sewer treatment capacity in order to facilitate development that is consistent with their general plans.

b. The facility should be funded so as to minimize competition for needed funds for other infrastructure in the South County.

6.2. The County and the two Water Districts should assist in the Cities' wastewater treatment program if feasible and agreed to by the Cities.

6.3. San Martin's sewage treatment needs should be determined with consideration given to the implications of: economics, population, land use and the governmental status of San Martin.

6.4. Beyond the proposals for which land use designations have been approved and for which alternative sewage treatment and disposal systems (other than septic tanks) have been approved in concept (Casa de Fruta and Nob Hill Family Park), no new land uses requiring the use of alternative sewage treatment and disposal systems should be permitted until a more reliable track record has been established.

6.5. The Joint Powers Pretreatment Program for industrial and commercial hazardous material users and/or hazardous waste generators should continue to be implemented in the two cities.

BACKGROUND REPORT
FOR THE
SOUTH COUNTY JOINT PLANNING PROGRAM

SEWERS / SANITATION IN SOUTH COUNTY

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COUNTY OF SANTA CLARA
DEPARTMENT OF PLANNING AND DEVELOPMENT
OFFICE OF PLANNING

Revised: May 16, 1985

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OVERVIEW OF STUDY/REPORT

Adequate sanitary treatment of liquid wastes is a basic requirement for land development and determines the kind and the location of development in the South County. Piped sewage systems and waste water treatment facilities are required for urban development; for low density, rural land use, septic systems are the accepted method. A third method, the so-called "package plant", is discussed as a method for remote or detached developments which generate discharges beyond the capacity of a septic system in locations without access to the conventional municipal waste water treatment facility.

There are several major sewer/sanitation issues. How the community resolves the capacity, timing, cost, and area to be served by the proposed expensive of the Gilroy/Morgan Hill sewer plant expansion will affect the size, timing, location of future urban development.

Whether more intensive development should be approved by the County in the unincorporated area on septic systems or package plants can affect groundwater quality and such land use questions as the nature of the rural areas, pressure of land speculation agriculture, and the preservation of open space.

The future of San Martin is closely tied to what form of sanitation is used in the next 20 years. If the area is to be intensively developed, it must have a waste water treatment system. How such a system is provided is closely related to the governmental future of the area.

The report describes the methods of waste water treatment, conditions and issues associated with them, and presents recommendations for how to deal with the problems and issues.

FINDINGS

URBAN/WASTEWATER TREATMENT IN SOUTH COUNTY

1. The existing Gilroy/Morgan Hill Wastewater Treatment Facility has not functioned according to design capacity. This failure resulted in a cease and desist order and moratorium on new hookups. The Regional Water Quality Board has required the Cities to develop interim and long-term solutions to the facility's capacity limitations.

2. On May 11, 1985 the Regional Water Quality Control Board rerated the capacity of the existing facility from 5.3 mgd to 6.1 mgd, based on demonstrated current capacity of the facility.

3. The most significant limitation of the existing municipal system is the lack of adequate percolation capacity of the ponds due to high groundwater levels.

4. There are six long-term disposal options, including a no project, being evaluated to allow construction of a new or expanded facility by 1988-1990.

5. Capacity in the current facility is available for planned development only until the end of 1985.

6. The 1984 average dry weather combined wastewater flow of 4.4 mgd is more than 75% of the 5.3 mgd rated capacity of the existing facility.

7. At least 5.6 mgd capacity will be required by 1988 to accomodate growth currently committed under the growth limitations of the two communities.

8. The amount and rate of growth of the two cities will be dependant upon the interim and long term capacity alternatives of the wastewater facility.

9. No sewer capacity has been allocated to San Martin.

10. The special treatment plant and percolation ponds for food processing wastes has been cited by the Bay Area Quality Managment District for odor violations. The City of Gilroy and the Food Processors have traded lands to reconfigure the percolation ponds to provide more effective percolation. It is hoped that this interim improvement will reduce the odor to meet Bay Area Air Quality Management District standards.

SEPTIC SYSTEMS

1. There are approximately 18,000 people residing in unincorporated areas of the South County using septic systems.

SAN MARTIN

1. All of the San Martin areas residences, farms and other establishments are served by septic systems, and access to the Gilroy/Morgan Hill sewer system is not available without annexation.

2. Outside the service area of the two small water companies, contamination of domestic water supply can only be prevented by limiting the total amount of discharge and by keeping the lots large enough that the effluent from the septic system does not reach the underground water in wells from which domestic water is drawn.

3. In various parts of the San Martin area, including those along Llagas Creek, there are soils with high permeability which allow septic effluent to travel through the soil faster and further, thus jeopardizing the quality of groundwater. Also, some areas have a high water table, where effluents can reach the groundwater. In such areas, further restrictions on land use and/or discharge are the accepted mitigations.

4. The San Martin Area, along with other South County areas, has wells producing water with unhealthy levels of nitrates. In such areas it is necessary to use bottled water or to denitrify the well water.

5. The General Plan states that if land use in the San Martin area is to be significantly intensified, a waste water management system, along with other improvements, will be required. It further states that the County should determine the best method to finance these improvements and services and determine what government entity should administer and operate them.

6. To sewer the San Martin area would be a major, project work project, partly because of the low density, and would be expensive for many present residents.

7. Creation of a special district or incorporation as a city are the most likely methods for organizing the project, with the issuance of bonds to allow the cost to be extended over a period of years, although the total cost would be increased by interest charges.

8. Extensive land use changes would be promoted by a sewer system.

PACKAGE PLANTS

1 The use of package sewage treatment plants has been proposed as a solution to sewer capacity problem and inadequacies of septic systems, however, these alternative systems are subject to the same treatment and disposal limitations as municipal systems.

2. The Regional Water Quality Control Board policies require that a "public entity" be financially responsible for the operation and maintenance of package plants. This public entity could be: the County, Morgan Hill, or Gilroy. Another alternative would consist of the formation of a County Sanitation District or a Community Sanitary District by the County Board of Supervisors.

I. URBAN WASTEWATER TREATMENT IN SOUTH SANTA CLARA COUNTY

A. CURRENT SITUATION

The sewage wastewater disposal capacity for the Gilroy/Morgan Hill Wastewater Treatment Facility has reached its limit. As a result, significant growth in these two communities cannot proceed as planned without expansion of the plant or construction of a new facility.

The problem associated with this facility lies not with treatment processes but with limitations on the disposal of the wastewater generated by the facility.

There are six options being considered to alleviate this sewage disposal problem in the South Valley. The alternative that is determined to be the most feasible, will have an effect on growth and urban expansion in terms of the amount, the rate and the location of growth. In addition, the financing for this facility may affect the availability of funds for other public services and facilities, which would then have its own impact on urban development.

Gilroy/Morgan Hill Wastewater Facility

The Cities of Gilroy and Morgan Hill are sewered by a municipal treatment facility located in Gilroy. The original system was constructed in Gilroy in 1927 and was modified to improve treatment processes in 1957 and 1969. In 1962, Morgan Hill hooked up to the Gilroy facility. The capacity of the plant at the time, for dry weather flow, was 3.7 million gallons per day (mgd). By 1970, the average dry weather flow approached the capacity of the plant.

In 1981, a new facility was constructed with a design capacity of 6.1 mgd. However, it did not function to design capacity. First, the aeration system failed to perform per design expectations, resulting in odor problems. Second, the 100 acres of percolation ponds failed to handle high winter flows for two back-to-back years of excessive rainfall. The experimental design and high groundwater resulted in inability of the plant to dispose of the amounts of wastewater produced.

In order to prevent flooding of the ponds, during the 1982 and 1983 floods, wastewater from the ponds was released into the Llagas Creek in violation of discharge policies of the Central Coastal Regional Water Quality Control Board (RWQCB).

In 1984 because of the severe probelems, the Regional Water Quality Control Board (RWQCB) rated capacity of the current facility at 5.3 mgd and issued a cease and desist order resulting in a moratorium on new hookups. Also, the cities were required to develop interim and long-term solutions to the problems. The cities undertook to meet these requirements and to resolve the problem with the Regional Water Quality Control Board.

On May 11, 1985, the Regional Water Quality Control Board restored the 6.1 mgd capacity rating. The cities now have a development permit allocation process to limit development to the system capacity.

Food Processing Wastewater Facility

Wastewater generated by four food processing plants in the Gilroy area is treated by a separate facility built by the Gilroy Food Processors adjacent to the Gilroy/Morgan Hill Wastewater Treatment facility. The partially treated food processing wastewater by passes the municipal treatment facility and is discharged into approximately 260 acres of percolation ponds. Because of significant odor problems associated with the food processing wastewater water treatment facility it has been cited by the Bay Area Air Quality Management District (BAAQMD). As a interim remedy, the Cities of Gilroy and Morgan Hill and the Gilroy Food Processors have traded land between the two plants and reconfigured the ponds to provide more effective percolation. It is hoped that this will both increase the winter percolation capacity for the municipal plant and provide odor control for the Food Processors plant and meet the standards of the BAAQMD.

B. INTERIM ALTERNATIVES PRESENT TO 1990

Overview

The Cities of Gilroy and Morgan Hill are experiencing residential, commercial and industrial growth. In 1984, the average dry weather combined wastewater flow of 4.4 mgd. was more than 75% of the 5.3 mgd rated capacity of the wastewater facilities that serve Morgan Hill and Gilroy. As a result, James M. Montgomery Engineers prepared a report as part of an on-going effort to responsibly coordinate the increase in wastewater flows that result from growth, with the construction of wastewater management facilities. This report concluded that additional wastewater facilities will be required by the end of 1988.

Plans have been made to provide interim capacity to serve the needs of the community between the time when the capacity of the current facility is exhausted and when new permanent facilities can be put into operation. Due to the recognition of unforeseen delays, the short-term interim period extends from the present to 1990, and quantifies the amount of interim capacity required if the construction of permanent facilities is delayed by one or two years.

Interim Capacity Requirements

During 1984, the planning staffs for Gilroy and Morgan Hill reviewed the records of sewer allocations and building permits issued. It was found that if all approved development takes place, the wastewater flow will exceed the rated capacity of the current facilities.

According to the Montgomery Engineers report, the projected average dry weather flow from Gilroy and Morgan Hill would reach 5.7 mgd by the end of 1988.

As mentioned previously, the RWQCB had rated the capacity of the plant at 5.3 mgd. However, since additional percolation ponds have been constructed the capacity of the existing facilities has been documented to greater than 6.1 mgd. On may 16, 1985, the RWQCB rerated the capacity of the facility to 6.1 mgd based on the documented operation, data presented for the Board.

Questions remain as to exactly when the allocated and permitted flows will become actual measurable flows. The excerpts from the Draft Interim Capacity Report (Appendix D) presents both Gilroy and Morgan Hill population and flow planning data used as the basis for revised wastewater flow projections.

Interim Capacity Alternatives

A series of actions to be taken to provide interim wastewater capacity have been developed and examined by the two cities and Montgomery Engineers. No rational alternatives were excluded from the list of alternatives. They have been grouped into three major sections for purposes of discussion and comparison.

A brief summary of these sections are presented below:

Section 1 - Includes those alternative actions that contribute to the rerating of the existing facilities above 5.3 mgd.

Section 2 - Includes conservation alternatives which may be effective for reducing wastewater flows from current and future uses and which would enable the current facilities to serve more users.

Section 3 - Includes alternatives which would provide for a marginal expansion of the capacity of the existing facilities by an increment of 2 to 4 mgd. This marginal expansion alternative would include the assumption of continued operation of the existing facilities, with some modifications.

C. OPTIONS/ALTERNATIVES FOR FUTURE AND LONG TERM PLANS - Present to 2008

Introduction

Although a number of planning studies relative to wastewater management in South Santa Clara County have been published, none have clearly defined and justified the best course of action for Gilroy and Morgan Hill. Therefore, in Gilroy 1984, the Gilroy-Morgan Hill Wastewater Managment Alternative Analysis and Long-term Plan prepared by Montgomery Engineers was published.

The study was designed to identify all alternative wastewater management options, to compare alternatives, and to select the best one. A 14.9 mgd flow projection is constant for each of the considered alternatives. This flow projection will permit full buildout for each city through the year 2008 according to their General Plans and their long-term growth control objectives and policies. This 14.9 mgd does not provide for the existing or projected growth of San Martin or any other part of the unincorporated County, therefore, if the County entered into some type of funding or capacity allocation with the two cities, the total projected build-out for Gilory and Morgan Hill would have to be reevaluated.

The following section reviews these alternatives.

1. Land Disposal Alternative

This land disposal alternative includes nitrification/ denitrification treatment and disposal by irrigation on lands at several locations in the South Valley. This alternative would be compatible with the continued use of the existing facilities and of any expanded pond areas.

If this alternative was selected, the City could act to begin to purchase land and incrementally expand the disposal facilities as dictated by demand.

2. Surface Discharge to the Pajaro River

This alternative involves an advanced wastewater treatment and discharge to the Pajaro River approximately two miles south of the existing facilities.

If this alternative was selected, the existing facility would be utilized and a 2 mile long outfall pipe would be constructed to provide for discharge to the Pajaro River.

3. Surface Discharge to the Ocean

This alternative involves secondary treatment, and conveyance in a 24 mile land outfall pipeline and discharge to Monterey Bay. The outfall pipeline would be routed along the Pajaro River. Once the effluent reached the ocean, it would be diffused into the ocean.

The study was designed to identify all alternative wastewater management options, to compare alternatives, and to select the best one. The following section reviews these alternatives.

4. Winter Surface Discharge to Pajaro; Summer Land Disposal

This alternative incorporates continued land disposal with upgrade treatment for nitrification/denitrification at a site close to the existing facilities, with summer land disposal in 323 acres located in the existing plant site and in the land to the south. The winter treatment would be upgraded and the high winter flows would be discharged to the Pajaro River.

5. Land Disposal With Underdrainage Discharge

This alternative is designed to improve winter reliability and reduce the amount (and quality) of land required, to 600 acres. It would involve the expansion of the existing land disposal alternative, upgrading of treatment to include denitrification, and installation of an underground drainage system to lower high winter groundwater levels of groundwater to the Pajaro River.

Evaluation of Alternatives

Each alternative was evaluated for its ability to meet each of the following selection criteria: costs, wastewater management/environmental impacts, acceptance by public agencies, expandibility, reliability, speed of implementation, compatibility with other auxiliary disposal methods, and integration of municipal and agricultural systems.

As a result of this evaluation it was determined that the best apparent alternative consists of a 14.9 mgd. (average dry weather) secondary treatment plant and an ocean outfall for disposal.

D. IMPLEMENTATION PLAN

In order for the Cities to begin the long term plan, they have begun to conduct the following activities which would implement the recommended long term wastewater management project: Project concept review by appropriate agencies; preparation of an Environmental Impact Report, development of a financial plan, performance of ocean studies, filing for a new Waste Discharge Permit Application, public hearings and Town Hall meetings, acquisition of lands, project funding, and design and construction of facilities.

At the most optimistic, it has been estimated that the new facilities can be in operation by September 1988, however, it is recognized that 1990 may be a more realistic date for completion of the facility.

E. IMPLICATIONS OF FUTURE GROWTH IN RELATION TO CAPACITY OF THE WASTEWATER TREATMENT FACILITY

Data provided in Appendix C Draft Interim Capacity Report, projects total population and flow projections for Gilroy and Morgan individually and combined (Tables 3,4,5 of Appendix C).

This projection was based to a larger extent on the long term growth control objectives and policies of the Cities of Gilroy and Morgan Hill, and considers the backlog of planned, approved, or permitted projects now being regulated by the planning staffs of Gilroy and Morgan Hill.

The tables show that residential projects will be constructed at a rate of about 400 units/year in each community for the next several years. The cost estimate is based on recent sewer capacity allocations actions by both city councils.

There is a shortage of employment relative to the current housing supply. On the basis of approved industrial development, it is asssumed that the development of residential and commercial/industrial projects will result in a balance between housing and employment by 1987 in both cities. After 1988, the industrial development will provide a surplus of jobs in relation to the housing supply, but both cities have policies to maintain the jobs/housing balance. After 1990 the rate of industrial development is expected to drop.

It is evident that interim capacity of the wastewater facility will be needed by mid-1987. Capacity in the current facility is available for the planned and allocated development only until the end of 1985.

The amount and rate of growth of the two cities will be dependant upon the interim and long term capacity of the municipal wastewater facility. The interim alternatives provide for a smooth growth process occurring in the two communities to 1988/1990 when the new facility is planned to start up.

ISSUES/OPTIONS

There are several issues/options regarding the municipal treatment facility which could serve as topics for discussion and for making recommendations by the South County Advisory Committee.

These issues/options relate to the impacts for future growth scenarios for each of the six long term alternatives being evaluated and the relationship of these scenarios to recommendations of the Advisory Committee. Each of the six alternatives, which include a no growth alternative, could result in a different pattern of growth, rate of growth and total amount of growth for the two communities.

Another issue relates to the funding of the chosen alternative and its potential impact on the availability of public monies for public services and facilities other than sanitary sewers. As additional funding issue relates to the possibility that the County could be a participant in the funding for the municipal facility. This option would presumably open the unincorporated areas to development is sanitary sewers are available. This County involvement could significantly effect the pattern of urban development in the South Valley.

RECOMMENDATIONS

-The total capacity for the Gilroy/Morgan Hill Wastewater Treatment Facility, its timing for completion and configuration should be consistent with the views of the community and the Committee for the overall growth of the South Valley.

-Funding for the facility should be arranged in such a way that it does not commit or tie up funds for other infrastructure needs of the South Valley. (Note: This point will be addressed in detail when the Committee considers the Infrastructure topic).

The two cities have hired the firm of Montgomery Engineers to select a long term solution to the wastewater treatment and disposal capacity problems. The Draft Interim Capacity Report is attached as Appendix E.

It has been determined by the planning studies associated with the development of this long term plan that additional wastewater facilities will be required for Gilroy and Morgan Hill by the end of 1988. It has also been suggested that interim capacity provisions should be implemented to serve the needs of the communities between the time when capacity of the current facility is exhausted and when new permanent facilities are in operation.

The Long Term Alternatives and Interim Capacity Alternatives and Requirements are discussed in detail in the report.

II. SEPTIC SYSTEMS

A. SEWAGE DISPOSAL FOR RURAL AREAS -- SEPTIC SYSTEMS

Within rural areas of the South County, septic systems are the basic means of sewage disposal. According to the 1980 Census, approximately 18,000 people live in unincorporated areas of the South County and utilize septic systems.

Although most of these systems seem to be functioning adequately, there are certain areas, such as San Martin, where the cumulative effects resulting from the total number of septic systems in the area have contributed to groundwater quality problems. In addition, there are locations where the intensity of existing or proposed uses may be greater than can be accommodated satisfactorily using septic systems.

The major issues facing the South County with regard to septic systems are:

> What will be the cumulative effects of continued development in rural areas using septic systems?
>
> What types and intensities of development should be permitted to occur utilizing septic systems?
>
> Are existing County policies and regulations regarding septic systems adequate to protect against surface and groundwater contamination from septic systems for the long-term future?

B. HOW SEPTIC SYSTEMS FUNCTION

A septic system consists of an underground septic tank and leach field system. The system generally operates by a gravity method. The septic tank clarifies the wastewater, which rises to the top of the tank as the solids (sludge) settle to the bottom. The wastewater is then discharged into a network of perforated leach lines which permit percolation of the effluent into the ground.

C. INTENSITY OF USES

The performance of septic systems is affected not only by the soil conditions of the site, but also the volume and composition of the effluent entering the system

Septic systems are generally suitable only for the disposal of residential wastes, and not for commercial or industrial wastes. County policies discourage the use of septic systems for commercial and industrial uses, except where such uses will not generate large volumes of sanitary wastes.

In some instances, problems have arisen from the approval of development too intense to be adequately accommodated by septic systems. The Casa de Fruta commercial recreation complex in the Pacheco Pass area, for example, has experienced recurring problems with its septic system due to the composition (grease content, specifically) and volume of effluent generated by this popular roadside complex.

There are several factors that affect the ability of the soils to adequately treat the septic tank effluent and avoid contamination of water supplies. These factors include: soil type, percolation rate, depth to groundwater table, distance to surface waters, slope, and depth to bedrock or impermeable layer.

D. IMPACT OF SEPTIC SYSTEMS ON DRINKING WATER

It has been reported by many services that the presence of septic systems contribute to the degradation of drinking water supplies, due to inadequate treatment of the wastes by the soils. This situation is especially true in the South Valley, where septic systems have been permitted in areas of high groundwater and where there are soils with high percolation rates.

Potential sources of contamination to drinking water supplies from septic systems are sewage constituants such as disease causing bacteria and virus, as well as excessive nitrate concentrations.

E. GOVERNMENTAL REGULATION OF SEPTIC SYSTEMS

Permits for construction and installation of septic tank systems are issued by the Santa Clara County Health Department, Environmental Health Services. These permits are issued in areas where municipal sanitary sewer services are not available and where there are appropriate soil conditions which permit the use of septic system use. It is the responsibility of the County Health Department to monitor septic tanks and to investigate complaints regarding suspected failing systems.

F. ISSUES AND OPTIONS

Issue:

How to minimize the potential of the cumulative effects of continued development in rural areas using septic systems.

Options:

Continue current policies regarding use of septic tanks and permissable densities of development in unincorporated areas of South County.

Identify deficiencies, if any, and modify policies regarding use of septic tanks and permissable densities of development in unincorporated areas of South County

Provide sewers or other alternative from of wastewater treatment and disposal for unincorporated areas of South County.

Issue:
How to assure that septic systems are approved only for types and intensities of development for which they are suitable.

Options:
Continue current policies and procedures.

Develop more explicit criteria for determining the types and intensities of development for which septic systems will be considered appropriate.

Issue:
Adequacy of existing County policies and regulations regarding septic systems to protect against surface and groundwater contamination from septic systems.

Options:
Continue current policies and procedures.

Monitor water quality conditions, identify deficiencies (if any), and revise current policies and regulations as needed.

G. RECOMMENDATIONS:

Continue to monitor groundwater and surface water quality conditions in the South County and modify policies and regulations, if needed.

III. SAN MARTIN - PRESENT CONDITIONS/FUTURE OPTIONS

A. CURRENT SITUATION

Are the County's current land use and septic system policies appropriate to guide San Martin to the year 2000 or beyond? The answer depends on what kind of San Martin is desired? The future of San Martin will be considered in another report; this section considers the sewer/sanitation issues which must be addressed as that future is considered.

The unincorporated community of San Martin which with the surrounding area has a total population of about 8,000, is located between Morgan Hill and Gilroy.

All of the San Martin areas's residences, farms and other establishments, are served by septic systems, and access to the Gilroy/Morgan Hill sewer system is not available without annexation.

The central area, located around San Martin Avenue and Monterey Road includes several blocks of houses on lots ranging from 6,000 to 20,000 square feet. In this area are also the elementary school, post office and several community-serving, commercial, service, and small industrial establishments, most of which are along Monterey Road. The remainder of the area, extending between Maple and Masten Avenues is rural residential development on lots ranging from 2.5 to 5 acres and larger.

Although the main line of the Morgan Hill/Gilroy municipal sewer system goes along Monterey Road, sewer service is not available to the area. Except for the County services building at Monterey Road and Highland Avenue, it is the policy of the two cities to allow access to the service only upon city annexation.

In the central area where lots are small, piped water is available. Consequently, contamination of domestic water by septic effluent is not generally considered a problem is in areas where domestic watering drain from wells. However, adequate functioning of septic systems is still refined to prevent environmental contamination.

Outside the service area of the two small water companies, contamination of domestic water supply can only be prevented by limiting the total amount of discharge and by keeping the lots large enough that the effluent from the septic system does not reach the underground water in wells from which domestic water is drawn.

In various parts of the San Martin area,including those along Llagas Creek, there are soils with high permeability which allow septic effluent to travel through the soil faster and further, thus jeopardizing the quality of ground water. Also, some areas have a high water table, where effluents can reach the groundwater. In such areas, further restrictions on land use and/or discharge are the accepted mitigations .

The San Martin Area, along with other South County areas, has wells producing water with unhealthy levels of nitrates. In such areas it is necessary to use bottled water or to denitrify the well water.

Because of concern over groundwater quality, the San Martin Water Quality Study was done in 1981. It concluded that the high nitrates were primarily the result of historic buildup from years of agricultural use with the more recent contribution being the increase of septic systems. The resulting recommendations included the restriction of land use/density to limit the future discharge of nitrates, with the most vigorous restrictions to be directed to areas of high-soil permeability and high groundwater, where contamination can be most direct.

Since the San Martin area overlies the Llagas Groundwater Basin there is reasonable concern about significantly increasing the cumulative discharge of septic effluent. Reduction of current discharges or significant increase of discharges would require a sewer system.

Although the main line of the Gilroy/Morgan Hill sewer system runs along Monterey Road, to sewer the area beyond the Monterey Road frontage would be a major, expensive public works project. Most of the area is low density and many of the residents have but moderate incomes. The expense to present residents would be very heavy. A survey conducted several years age as part of a previous planning program for San martin showed the residents to be willing to undertake significant tax increases for public services.

Creation of a special district or incorporation as a city are the usual ways of funding sewer systems, and the issuance of bonds is the usual way of extending payment over a long period of time, although total costs are higher because of interest changes. Consideration is usually given to intensify land uses to make full use of the capacity and to lower the share of the cost to be paid by each uses.

B. COUNTY GENERAL PLAN POLICIES REGARDING LAND USE AND SEPTIC SYSTEMS IN SAN MARTIN

County policies regarding land use and sanitation in San Martin are based on the findings and recommendations of the 1981 San Martin Water Quality Study. The County General Plan land use designations allow rural residential uses and some other uses, but under very constrained conditions. Most of the area is designated Rural Residential, which allows primarily residential agricultural and open space uses on 5 acre minimum lots.

There is also an Industrial/Commercial Use Permit Area designated between Monterey Road and Llagas Creek where very limited light industrial and commercial uses may be established only upon securing a use permit and where it can be demonstrated that their septic systems will not degrade the groundwater. The General Plan policies further specify that commercial uses which generate high volumes of sanitary waste water, such as restaurants or motels, should not normally be allowed to develop on septic tanks, unless provision can be made for special treatment devices in conjunction and compliance with County regulations and specify approval by the Regional Water Quality Control Board. Further, areas with high soil permeability, such as those along Llagas Creek and other areas with permeability rates exceeding 6 inches per hour, should be protected from activities requiring additional septic systems or likely to generate significant volumes of organic wastes or nitrates.

The General Plan clearly states that if land use in the San Martin Area is to be significantly intensified, a waste water management system, along with other improvements, will be required. The County should determine the best method to finance these improvements and services and determine what government entity should administer and operate them.

C. ISSUES AND OPTIONS

Whether San Martin continues as a low density rural residential area or becomes an urban area will determine how the issues of sanitation should be resolved. This section presents the San Martin sanitation issues and options in that context, with the understanding that final recommendations will be prepared after the Advisory Committee prepares overall recommendations for San Martin's future.

ISSUES/OPTIONS

If San Martin is to remain a low density rural residential area for the next twenty years, consideration must be given to whether present County land use and septic system policies are adequate to protect the quality of groundwater or if they should be made more restrictive or less so.

Proposals for intensifying the use of land in San Martin are presented to the County each year. Some of them approach or exceed the limits of current County policies and result in requests of relaxing those policies.

If San martin is to be developed with significantly intensified land uses, a waste water system along with other urban service systems will be required. If this is undertaken, a number if choices ensue about how to do it. A sanitation or sanitary district or a multi-service district could be formed, which would be empowered to undertake the project and levy taxes to fund it, while the area would remain in the County.

A city could be incorporated as the agency to provide the sewers and levy taxes. In this case, the city would be responsible for most other services too, and would have to levy sufficient taxes to fund all other required municipal services.

Bonds could be issued to lower the current cost, spreading it over a number of years. While this would lower the annual cost, the total cost at the end of the bond retirement program would be several times more because of interest costs.

Whether the district or city form is pursued, it would be necessary to negotiate participation in the Gilroy/Morgan Hill system or undertake creation of and independent system with approval by all regulating agencies.

All of the options above raise major land use options. The sewer system would permit intense development, including commercial and industrial. At the same time, various types of non-residential development typically pay more in taxes then they cost in public services. If such land uses located within the boundaries of the districts or city, the cost ot residents would generally be less. All of this of course, would produce a San Martin different from the San Martin of today.

D. RECOMMENDATIONS

If San Martin is to remain as it is now, basically a generally low density rural residential area, current County land use and septic system policies should be continued with no lessening of restrictions. Land uses generating discharges which are high in volume or high in nitrates, organic materials or other problem chemicals should be restricted.

Ground water conditions should be monitored to determine of changes in current policies are needed.

If the Advisory Committee decides to recommend an urbanized future for San Martin, it should then prepare recommendations regarding a waste water management system for the area and how it should be organized.

PACKAGE SEWAGE TREATMENT PLANTS

A. A THIRD ALTERNATIVE -- "PACKAGE PLANTS"

A third method of sewage disposal in the South County is currently under consideration by the County -- the use of "package treatment plants".

Package plants are small, remote wastewater treatment systems similar to municipal treatment facilities. "There are many different variations to the design of these facilities. They are usually proposed in areas where municipal systems are not available and where septic systems are not feasible (due to factors such as the nature of the site, or the nature of volume of the effluent). The use of package sewage treatment plants has been proposed as a solution to sewer capacity problems and inadequacies of septic systems, however, these alternative systems are subject to the same treatment and disposal limitations as municipal systems.

Very few jurisdictions in this area have permitted the use of package plants, in large part because a number of these systems have proven to be unreliable. Where such systems have failed, the problems have resulted as much from inadequate or improper operation and maintenance as from faulty system design. Where such systems have failed public agencies have often had to step in and take over the operation of the system or extend sewer lines to serve the developments involved.

The "track record" of package plants, however, has not been entirely bad. Various examples exist where such systems have performed adequately over long periods of time. Most of these systems have either been operated by large corporations with sufficient financial resources to assure that they are adequately maintained, or are operated by public agencies. In either case, the package plants have been used to treat only domestic wastes, not commercial or industrial wastes, or wastes that might be generated at facilities such as truck stops.

Further information regarding package plants is included in the Technical Appendices to this report.

B. RECENT PACKAGE PLANT PROPOSALS

Over the last several years, the County Board of Supervisors have been asked to consider General Plan amendments to allow development projects in rural areas of the South County for which septic systems are not suitable due to the size of the proposed projects and the nature of the wastes generated by these uses. The types of proposed development include, recreation/amusement parks, high tech research and development facilities, and full service truck stops.

Of the four proposed General Plan amendments that would involve the use of package treatment plants:

One has been approved (Nob Hill). This amendment involves the development of a commercial recreation/amusement complex adjacent to Highway 152 (Hecker Pass Highway) west of Gilroy. A use permit to allow this development to proceed has been applied for by the owner. Although it has been assumed that a package plant would be used for this project, the final design of its sewage disposal system has not yet been specified.

One has been denied (Interest Truck Stops, Inc.), although not for reasons relating to the proposed use of a package plant. The amendment proposed the development of a full-service truck in San Martin near the South Valley Freeway at Masten Avenue.

Two are still pending (Monschke; Kalend), awaiting the completion of environmental or other special studies. The proposed Monschke amendment would allow the construction of a mixed use development involving high tech research and development facilities and estate housing in the Hayes Valley area west of San Martin. The Kalend amendment would allow the development of a truck stop adjacent to Highway 152 (Pacheco Pass Highway) east of Gilroy.

Another General Plan amendment application has recently been submitted for review later this year that would involve the use of a package plant in conjunction with the development of a truck stop in San Martin adjacent to the South Valley Freeway at San Martin Avenue.

In addition, it has been reported in a local newspaper that another General Plan amendment will be proposed this proposed this year to allow the development of an industrial park adjacent to Gilroy, using a package treatment plant. The County has not yet received an application for this amendment.

C. PACKAGE PLANTS IN SOUTH COUNTY

The United Technologies Corporation facility, located in a remote hillside area in the Diablo Range, operates an on-site sewage system for treatment of waste generated by the employees of the facility. The plant, which was constructed in the 1960's, consists of an aerator and a series of waste treatment and disposal ponds which cover an area of approximately 4 acres. The disposal process also involves spray irrigation to approximately 1-1/2 acres of hillside.

According to the operators of this facility, the plant functions well and provides for adequate waste treatment. There has been, however, at least one instance where a pond levee failed which resulted in a wastewater spill into a nearby creek.

An experimental plant was installed in the early 1970's by the owner/developer of of Hill Country recreation complex east of Morgan Hill. This system was expected to serve a restaurant and several other recreation uses. This system did not function properly and Hill Country was subsequently connected into the Gilroy/Morgan Hill sewer system.

D. REGULATORY AUTHORITY FOR PACKAGE TREATMENT SYSTEMS

In order for a package plant to be approved for use in the unincorporated areas of the county, an applicant would have to obtain permits from both the County and the Regional Water Quality Control Board.

Santa Clara County currently has no ordinances or regulations which relate specifically to package sewage treatment plants.

According to State Regional Water Quality Control Board (RWQCB) policy however, the County would be responsible for creating a "public entity" which would be responsible for the safe operation, maintenance, and monitoring of the package plant.

This public entity would also be liable for any failure of the system. This public entity could be in the form of a County Sanitation District, a Community Service Area or a County Service Area. The formation of any of these would also require approval from the Local Agency Formation Commission.

E. MUNICIPALLY-OPERATED PACKAGE PLANTS

It was recently been proposed to the cities of Morgan Hill and Gilroy that as an interim or permanent solution to their current sewage disposal problems, they consider constructing one or more small-to-moderate scale,municipally-operated package treatment plants. It is not known whether this proposal is being considered seriously by either jurisdiction at this time.

F. EVALUATION OF THE FEASIBILITY AND POTENTIAL IMPACTS OF PACKAGE PLANTS

The Santa Clara County Office of Planning is currently preparing a study regarding package treatment plants. Among the topics being addressed in the study are:

- Regional Water Quality Control Board policies regarding package plants;
- Reliability of package plants;
- The County's potential financial liability in the event of a plant failure;
- The costs to the County to monitor the design; construction, operation and maintenance, and effluent from package plants;
- Potential impacts of package plants on County and city land use policies

The results and recommendations of this study are currently expected to be available in June.

G. ISSUES AND OPTIONS

Issue:
Should the County permit the use of package treatment plants within unincorporated areas of the South County?

Option:
The County should allow the use of package plants for specific uses in specified areas, subject to stringent design, operation, and monitoring standards.

County should not permit the use of package plants.

H. RECOMMENDATIONS

The findings and recommendations of the County Office of Planning's forthcoming report on package treatment plants should be referred to the South County Advisory Committee for review and comment prior to a decision by the Board of Supervisors regarding the approval of package treatment plants in unincorporated areas of the South County.

V. SUMMARY OF RECOMMENDATIONS

1. The total capacity for the Gilroy/Morgan Hill Wastewater Treatment Facility, its timing for completion and configuration should be consistent with agreed upon policies for the overall growth of the South Valley.

2. The facility should be funded so as to minimize competition for needed funds for other infrastructure in the South Valley. (Note: This point will be addressed in detail when the Committee considers the Infrastructure topic).

3. In the unincorporated area current County policies regarding septic systems and land use should be continued with no lessing of standards. Groundwater and surface water quality conditions throughout the South County should be monitored to determine if changes in regulations regarding septic systems and land use are needed.

4. If San Martin is to remain a generally low density rural residential area, current County land use and septic system policies should be continued with no lessening of restrictions. Land uses generating discharges which are high in volume or high in nitrates, organic materials or other problem chemicals should be restricted. Ground water conditions in the San Martin area should be monitored to determine if changes in current policies regarding septic systems and land use are needed.

   If an urbanized future is recommended for San Martin, recommendations should be prepared regarding a waste water management system for the area and how it should be organized.

5. The findings and recommendations of the County Office of Planning's forthcoming report on package treatment plants should be referred to the South County Advisory Committee for review and comment prior to a decision by the Board of Supervisors regarding the approval of package treatment plants in unincorporated areas of the South County (page 33).

REFERENCES AND SOURCES

1. David W. Miller, Ed., Waste Disposal Effects on Groundwater. 1980.

2. Santa Clara County Office of Planning, Summary of Presentation to the Committee on Sewage Disposal. (1981)

3. Cities of Gilroy and Morgan Hill, Environmental Impact Report. Sewage Treatment an Disposal Facilities. (1976)

4. Santa Clara County Office of Planning. Use of Package Sewage Treatment Plants in Rural Areas of Santa Clara County - Summary. (1982)

5. James M. Montgomery, Engineer. Draft Interim Capacity Report, Cities of Gilroy and Morgan Hill and Wastewater Facilities (1982)

6. James M. Montgomery Engineer - Gilroy-Morgan Hill Wasetwater Management Alternative Analysis and Long Term Plan, Executive Summary, (1984)

1. Christopher B. Cain, Project Engineer, James M. Montgomery, Consulting Engineers, Inc.

2. Bob Howard, Director Public Works, City of Morgan Hill, CA.

3. Seong H. Kim, Principal Sanitary Engineer, City of Gilroy Public Works.

4. Michael Dorn, Planning Director, City of Gilroy